1.0 Statement of Work Chain Link Fence Project

1.1 General

The offeror shall provide all labor, materials, equipment, machinery, and components to construct the requested fence/structure. The offeror shall provide for review and approval complete shop drawings to include fence, footer and drainage; material properties for the fence/structure to be provided and clearly identify an ability to support the logistical and security requirements associated with project execution.

The offeror shall have the capability of providing the construction requested which can be easily installed in an austere location with varying types of terrain, requirements and considerations to include personnel and equipment force protection. Once installed, the system shall offer immediate stability meeting all appropriate Colombian construction and structural codes. The system shall include all required accessories, such as truss rods, truss rod tightness, chain link tension wire, and protection elements.

Assembly Process.

The offeror shall provide and assemble the system according to the following procedures:

1.2.1 The offeror shall submit for review by the Contracting Officer Representative (COR) an location fence, existing ground profile including final fence installation with shop drawings, which is to include the technical requirements, material requirements, design and details of the system fence/structures, the recommended approach for the project and detailed timeline, GANTT Chart and Critical Path diagram.

1.2.2 Transportation of Materials. The offeror is responsible for coordinating the transportation of all required material for assembling the fence/structure requested. The offeror is responsible for ensuring that all project material is delivered in the appropriate and timely manner, taking the necessary precautions to avoid any damage to the material during transport and full consideration and responsibility for all transportation security requirements. The offeror shall also take into consideration the transportation of project waste and excavation material from the work site to an approved dump or land fill.

1.2.3 Assembly of the fence/structure. The offeror is solely responsible for the mounting, installation, and assembly of the fence/structure in a safe, proper and timely manner.

1.2.4 Fill Material. The offeror shall conduct a site specific geotechnical survey and shall ensure the site properties meet the required physical properties to support the fence/structure offered. Should the offeror require any fill material located at a different site to be used as fill material for the site the offeror shall take soil samples and/or perform other appropriate soil

studies to determine suitability of said material. The offeror is responsible for ensuring that the fill material used in support of the project is adequate for the purpose used and meets all National, Colombian National Standards and Codes.

1.2.5 If delivery of fill material is necessary, the offeror shall include the location where appropriate fill material is to be obtained. The offeror is solely responsible for the acquisition of and quality of all fill material

1.2.6 Equipment and Machinery. For each project, the offeror shall identify, procure or rent the appropriate equipment and machinery to be used, based on the project requirements.

1.3 Site preparation. For the entire scope of the project, the offeror shall identify all tasks required to install the requested fence/structure, including but not limited to disassembly/removal of existing fencing and structures. If any surface or subsurface obstacle is encountered it will be removed and properly disposed of or if required (i.e. fencing, utilities, aqueduct, sewage line etc.), will be properly relocated/rerouted to allow for the construction. All work must be performed in accordance with the latest appropriate Colombian National codes.

1.4 Water and sewage services. When required, ensure proper relocation/rerouting of all pipes and lines. These items will be detailed and individually priced. The offeror shall indicate in its proposal how it plans to manage this task. The offeror shall provide a civil-hydraulic certified engineer for completing the work with demonstrated, relevant experience for design and on-site supervision. All work shall be performed in accordance with the latest appropriate Colombian National codes.

1.5 Power services. The offeror shall identify all tasks required to provide power services. These items will be detailed and individually priced. The offeror shall indicate in its proposal how it plans to manage this task. The offeror shall provide a certified electrical engineer for the completion of electrical installations and equipment with demonstrated, relevant experience for design and on-site work. This task includes but is not limited to: external movable spotlights; reflectors; system planning and construction of electrical infrastructure (if required posts, cabling, substations, transformer, and generators, etc.), in accordance with the latest appropriate Colombian National codes.

2.0 Delivery Location and Time.

The contractor shall deliver all defense system/fencing material and components to the work sites by the date and time specified.

The contractor shall be responsible for ensuring that its personnel and subcontractors follow all special instructions for delivering materials, as may be specified. This applies to any

outside sources or subcontractors that might be delivering materials to a project site on behalf of the contractor. The contractor is responsible for the security of the material and components.

3.0 Completion, inspection, and delivery

The offeror shall include a project management tool (Gantt chart, critical path, or equivalent) indicating preparation, delivery, installation, clean up/turn over, and related tasks, this tool shall be updated upon award of the contract and maintained to date throughout the project as required.

4.0 Specifications.

4.1 General.

The fence/structure shall follow the specifications included below under Section (6).

4.1 Fence Material Treatment.

All metal fence material will be galvanized and treated to specification to inhibit rust. All welding of the galvanized material will be executed with safety precautions in place that give full consideration to the requirements associated with welding galvanized metal and all welds will be treated to inhibit rust, and welding must not damage or weaken the fence structure.

4.2 Maintenance.

Following installation, the installed fence/structure design shall facilitate ease of maintenance. All damages - environmental, accidental or combat-related - shall be easily corrected using the same materials as were used in the original construction. During the warranty period, any damage related to poor site preparation, quality of material or construction shall be repaired by the offeror. All damages shall be repaired in such a manner so that the repaired fence/structure has the same quality, resistance and provides the level of protection as before the damage occurred.

4.3 Warranty.

The offeror shall provide a fence/structure that will remain stable with the required level of army base security for a minimum period of 10 years. During the ten-year period following installation, the constructed fence/structure shall be able to retain its quality and protective properties. The warranty will cover all of the components used to construct the fence for 10 years.

5.0 Supply and Required Components.

The offeror shall at a minimum provide the fence components addressed in Section (6)

TECHNICAL SPECIFICATIONS

6.0 ENCLOSURE TYPE I

General Information

The project consists of the construction of the perimeter of chain link fence minimum 10 gauge covered in PVC for two (2) Colombian Army (BRACNA) bases, the Brigade #30,Grupo de Caballeria mecanizada No. 5 in Cucuta and Fuerza de Tarea VULCANO, Engineers Battalion No. 30 in Tibu – Norte de Santander, Colombia.

The length for the required perimeter fences are: 218 ml in the Brigade #30, Grupo de Caballeria mecanizada No. 5 in Cucuta and 170 ml in Fuerza de Tarea VULCANO, Engineers Battalion No. 30 in Tibu – Norte de Santander, Colombia. **The length for the required perimeter fences shall be verified by offerors.** The scope of the project shall include reinforced concrete foundation supported and joined by a reinforced concrete tie beam using corrugated steel-reinforcement D = 3/8 " for longitudinal reinforcement and smooth steel D = ¼" for stirrups, with a cyclopean concrete foundation with a minimum section of (0.3 m x 0. 4 m) , 2-inch galvanized pipes with steel cap 2,50 meters each, a total height of 2 meters for the fence, three (3) strands barbed wire 14 gauge, two (2) pedestrian doors and one (1) vehicular access (2 sheets), for each location. The scope of this project shall not include water supply and electrical systems.

The contractor shall build the fences in each battalion (Cucuta and Tibu) **simultaneously.**

6.1 CLEARING AND CLEANING

General information

Site preparation will consist of clearing and grubbing of the project area, specifically a minimum of 2 m wide area along the fence centerline for the entire length of the 218 ml in the Brigade #30,Grupo de Caballeria mecanizada No. 5 in Cucuta and 170 ml in Fuerza de Tarea VULCANO, Engineers Battalion No. 30 in Tibu – Norte de Santander. Vegetation will be cut to a minimum height of approximately 5 to 20 cm. This task will be done manually as not to move any existing reference points. Excess material from this process must be completely and safely removed from the site and dumped at a contract pre-approve site.

Locating and layout:

The contractor shall perform a survey of the project area using precision topography instruments, based on the design supplied. The contractor shall double-check the measures of

the area assigned. This shall be done by a certified professional who, in addition to the planimetry, shall establish the project levels. Everything shall be referenced using strongly fastened wooden headers. The contractor shall supply all of the materials to build the planimetry references, the level references, such as stakes and field logs, etc.

The US Government representative shall review the location of the axes, but this does not waive the contractor of its responsibility, in the event of an error in locating or leveling, in any portion of the works. Before beginning with the locating and laying out, the contractor shall confirm the points of reference or ties required with the CNP construction section which shall be defined and approved this reference, as well as the borders of the terrain to occupy.

The temporary Bench Marks (BM) and references axes shall be located in spots that do not interfere with the performance of the works, where it shall not be necessary to remove them, in order to enable later control at any given time during the works. Paint marks of any kind, scrape marks, nails, centering pegs, etc. are not allow in the present construction or base structures. After doing the locating and laying out of the modules, the contractor shall submit a drawing including the location of the structures and existing trees and shrubs, for approval.

The contractor shall include the location and laying out of all the work necessary to complete the project, as well as submission of the drawings.

Equipment

The above shall be executed with the appropriate equipment, specific to address the site conditions and shall be approved prior to the commencement of work by the US Government Contracting officer and Contracting Officer Representative (COR) and specified in the contract.

6.2 EXCAVATION

General Information

The contractor shall perform the necessary excavations in accordance with the chain link fence line track and width dimensions required. The excavation for the cyclopean concrete footer will be in a length of: 218 ml in Cucuta and 170 ml in Tibu; minimum width of 0.3 m and minimum height 0.4 m. The excavation for the foundation of the support angle footer will be a minimum of 0.3 m x 0.3 m x 0.4 m.

The contractor shall execute their operations in a continuous/sequential manner and according to the approved work plan. Contractor shall not execute any excavation until requisite measurements are taken and stakes are in place.

Classification

The excavations shall not be classified, whatever the type of material is on site is what is required to be excavated.

Equipment

The above task shall be executed taking into account site soil and terrain conditions and upon approval of both the US Government Contracting officer and Contracting Officer Representative (COR)

Drainage

The contractor shall execute the excavation necessary in accordance with the alignment, dimensions and grade required. The contractor shall assume the task's risk and take required measures to maintain the excavation sites and work areas clean/clear/free of debris and properly drained. Where necessary the contractor will install temporary and/or permanent trenches and drainage so as to ensure water does not negatively impact project work. Where the bottom of the excavation contains inappropriate material, the contractor must remove the material and execute the required work to ensure an adequate excavation finish.

Leftover material

Upon completion of the excavation the contractor shall remove and deliver all excess/leftover material to an approved dump site. Note: this material must be removed as work progresses and not be allowed to accumulate throughout the project.

6.3 CYCLOPEAN CONCRETE

General Information

The cyclopean concrete for the foundations shall have a proportion of 60% simple concrete of 3.000 P.S.I and 40% clean fractured stone, exempt of weathering parts and with an approximate size of 20 centimeters with a maximum width of 1 ½ -inch long. Length of cyclopean concrete base will be 218 ml in Cucuta and 170 ml in Tibu. The section of cyclopean concrete shall be a minimum of 0.3 m X 0.4 m (site conditions may require more). Basic specifications and code for concrete shall be met.

6.4 REINFORCEMENT - TIE BEAM

General

The concrete tie beam shall have a section of a minimum of 0.2 x 0.3m. in a length of 218 ml in Cucuta and 170 ml in Tibu. The concrete pedestals will have a section of a minimum 0.3 x 0.3 x 0.4 m with vertical galvanized posts inserted in the concrete which shall be a minimum of 3.000 P.S.I (F`c= 210 Kg/cm2), meeting all basic specifications for the specified concrete.

6.5 and 6.6 STEEL Re-bar F'= 4.200 Kg/Cm2 D= 3/8" corrugated, Smooth steel F'= 2400 Kg/Cm2 D= 1/4" (Kg)

General

Reinforcement rods shall be steel re-bar for the longitudinal steel of the tie beam and smooth steel for the stirrups. It shall meet the code/specification of NTC 248 and for steel AH63. For diameter of 3/8" (F`y= 4.200 Kg/cm2) Re-bar shall be used and for diameters of less than 1/4" AH 24 smooth rods shall be used according to the NTC 161. Note: The reinforcement shown in the attached drawings only shows the general location and the typical types of rods.

Construction Method

The contractor will provide all labor, materials and equipment for the execution of all work shown and specified in the plans. All work shall be subject to inspection and approval of the US Government Representative (COR).

Placing the reinforcement

The reinforcement shall be placed as specified in the plans and shall be properly secured in place for and during the pouring process. Rods shall be tied at the intersections. The reinforcement shall be supported by wire bolsters or concrete spacers, previously approved by the US Government Representative (COR). The contractor shall immediately provide details when requested by the US Government Representative (COR).

Anchoring fence mortar

The anchoring fence mortar mix design shall have a proportion 1:4 of cement-sand. The lower part of the fencing material/mesh shall be anchored in a cement-sand mix in a proportion of 1:4, in order to fix it to the tie beam, which will have a base triangle 0.20m shape and 0.05m high embedded in the fence, in order to guarantee a uniform finish of the concrete.

6.5 No 8 GAUGE STEEL TENSION WIRE

A # 8 gauge galvanized tension wire shall be installed in the upper and lower part of the mesh to avoid the loosening of the mesh. Reference the statement of work and drawing provided.

6.6 WIRE MESH H: 2M

This work is comprised of all activities required for the construction and completion of a fence constructed utilizing a 10-gauge (interior), (8 gauge exterior) wire mesh which shall meet the rule of 80 grams of galvanized/m2, and the galvanized percentage shall be certified in the proposal. The fence shall be installed at the site / along the center line specifically addressed in the solicitation and addressed during the contract pre-award site visit.

This task also comprises the following sub-activities:

- Supply and installation of galvanized steel posts with a diameter of 2" and 3.0m long, gauge 16.
- Supply and installation of reinforcement diagonals in galvanized rail pipe, with a diameter of 2" and 3.20m long, SCH 40.
- Supply and installation of anti-seismic tie down brackets in galvanized piping with a diameter of 2" and from 2.6 to 3.0m long. SCH 40.
- Supply and installation of 10 gauge PVC coated wired mesh, galvanized wire mesh, that meets the code/specification of 80g of galvanization /m2 and hole of 2"x 2".
- Supply and installation of 14 gauge barbed wire.
- Supply and utilize welding equipment and labor (welding must be performed by a certified welder).
- Supply and installation of tension wire in the lower and upper side of the mesh.
- Supply and installation of a flange plate to fix the mesh to the frames.
- Supply and place the anchor cement to the mesh.
- All welded joints are to be protected by applying zinc-rich paint in accordance with ASTM Practice A780.
- Supply two securable pedestrian gates (sites to be designated during preconstruction conference)

Each of these sub-activities will be accepted after inspection by the US Government Representative (COR).

Materials

According to the requirements, the only material that can be used is that material previously approved by the US Government Representative (COR). Material may be subject to announced or unannounced inspection and tests prior to starting the project, and/or during project execution. Sources of all the materials shall be approved prior to use.

6.7 POSTS, RAILS, SUPPORT FLANGES AND TIE DOWN BRACKETS

Post, support flanges and tie down brackets shall be made of galvanized material, their diameters/measurements shall comply with what is indicated in the contract and described in

the Project plans and must include all elbows, caps, anchors and accessories necessary for proper installation.

6.8 FOUNDATION FOR THE LATERAL SUPPORT BRACKETS IN CONCRETE

At each 30 meter point there shall be installed anti-seismic lateral support brackets with a vertical angle of approximately 30 and 40 degrees, welded, on the upper part, to the vertical posts and anchored on the lower part 0.20m in a foundation of 0.4 x 0.3 x 0.3 simple 3.000 PSI concrete. The total length for each lateral support bracket shall be approximately 2.60m to 3.20m.

6.9 SUPPLY AND INSTALLATION OF FOUR (4) STRANDS OF BARB WIRE

The galvanized barbed wire must be 14 gauge, double thread, triple twisted with a minimum separation of 13 cm between barbs with 4 points per barb.

6.10 SUPPLY AND INSTALLATION OF BARB WIRE MOUNTING PLATE

The barb mounting plate shall be of 1/8" * 1/2" and 1.95m high. It shall be installed over the 2" galvanized post and affixed with welding points guaranteeing optimal stability and security.

6.11 SUPPLY AND INSTALLATION OF GABIONS TO SUPPORT OF THE CHAIN LINK FENCE

6.11.1 Excavation

The contractor shall make an excavation h= 1.0 m. until find the foundation level.

In all areas the soil at the bottom of the excavation shall be compacted before starting the filling, using self-propelled mechanical equipment and/or manual labor.

6.11.2 Filling material

This item includes the supply, spreading and compaction of filling material. Therefore, it includes the provision of all labor, materials, equipment and performing of all work necessary to carry out the required compacted filling work. Before starting the filling, the ground that shall serve as base must be completely free of vegetation, organic soil and construction waste materials and must be compacted. The surfaces shall not have flood or stagnant water areas.

The Contractor shall use for the filling gravel materials that shall not contain any organic silt, plant matter, garbage, solid waste materials or debris. The maximum size of the materials shall be five (5) centimeters. The fine contents (the percentage that passes through a #200

sieve) shall be less than twenty percent (20%), and the material plasticity index that passes through a #40 sieve shall be less than 12%. The materials for filling shall be compacted in successive symmetrical layers of minimum ten (10) centimeters and maximum fifteen (15) cm at a compaction of 95% of the modified proctor. The compacting methods and equipment to be use shall be approved by the US Government representative.

6.11.3 Lean concrete

The contractor shall supply and install lean concrete with T= 8 cm. The concrete lean shall include electro-welded mesh of 4 mm.

6.11.4 Gabions

The work under this specification includes furnishing, assembling, filling and tying open wire mesh rectangular compartmented gabions placed on a prepared surface, as specified, and in accordance with the lines, grades, and dimensions shown on drawings.

The mesh shall be INVIAS type and fulfil with all quality standards indicated in INVIAS specification A-871-07, and NTC-5333.

Empty gabion units shall be assembled individually and placed on the approved surface to the lines and grades as shown or as directed, with the sides, ends, and diaphragms erected in such a manner to ensure the correct position of all creases and that the tops of all sides are level. All gabion units shall be properly staggered horizontally and vertically as shown in the construction drawings. Finished gabion structures shall have no gaps along the perimeter of the contact surfaces between adjoining units. All adjoining empty gabion units shall be connected along the perimeter of their contact surfaces in order to obtain a monolithic structure. All lacing wire terminals shall be securely fastened. All joining shall be made through selvedge-to-selvedge or selvedge-to-edge wire connection; mesh-to-mesh or selvedge-to-mesh wire connection is prohibited except in the case where baskets are offset or stacked and selvedge-to-mesh or mesh-to-mesh wire connection would be necessary. As a minimum, a fastener shall be installed at each mesh opening at the location where mesh wire meets selvedge or edge wire.

The initial line of basket units shall be placed on the prepared foundation and adjoining empty baskets set to line and grade, and common sides with adjacent units thoroughly laced or fastened. They shall be placed in a manner to remove any kinks from the mesh and to a uniform alignment. The basket units then shall be partially filled to provide anchorage against deformation and displacement during the filling operation (The contractor shall use wood formwork to fill the mesh). The stone shall have 30 mm. minimum size more than larger of the mesh hole. The mesh hole shall have 80x100 mm size.

The contractor shall submit gabion shop drawings, data sheet and installation method for approval before starting the installation.

CONSTRUCTION

The Contractor shall supply labor, materials and equipment necessary for the execution of the work specified in the plans and the statement of work. Post supporting the mesh shall be 2" diameter galvanized each spaced 2.5m between axis with an anchoring depth of 0.50m and free vertical height of 2m; additionally, it shall have an angled section of 0.50m long and 45 degrees in relation to the horizontal, which shall have rings symmetrically placed to receive 4 strands of barbed wires. The total length of the post shall be 3.0m.

At each 30 m, and in all changes of direction over 30 degrees, a 2" diameter galvanized diagonal piping shall be placed on both sides of the pipe braced and welded to the ends of the vertical post. Each diagonal pipe shall be 3.20m long.

Additionally, each 30 meters anti-seismic lateral support brackets will be placed with an angle of approximately 30 - 40 degrees in relation to the vertical. They shall be welded on the upper part of the vertical post and anchored on the lower part 0.30m in a 3.000 PSI simple concrete footer of 0.4 x 0.3 x 0.3. The total length of each lateral support bracket shall be approximately 2.60m and 3.0m.

All diagonal post and lateral support brackets shall be galvanized. Once the post, diagonals and lateral support brackets are installed, the galvanized mesh fencing material will be installed continuously for every 30m or up to a location that has a change of direction. Secured to the post with either 10 gauge galvanized wire ties or galvanized tension bands, separated at a distance of no more than 0.30m, except each 2.5m where a galvanized holding plate will be welded to the post and then protected using wash primer and enamel aluminum color.

After that, a #8 galvanized tension wire shall be installed. It shall be installed so as to avoid the loosening of the mesh. In the tilted part of the post, there shall be 4 strands of barbed wire tightly fixed to the rings.

In the lower part of the mesh there shall be cement-sand mortar footer in a 1:4 proportion, in order to fix it to the lateral support beam, and will have a triangular shape with base 0.20m and 0.05m high, with a vertex in the mesh and a uniform finish, so that it does not sink nor protrude.

The holding plate shall be of 1/8" * 1/2" and 2.00m high. It shall be installed along the 2" galvanized post and affixed using welds in order to guarantee maximum stability.

The work requested shall be performed by qualified labor, adhering to or exceeding all specifications in the statement of work.

UNIT OF MEASURE

The unit of measure utilized for payment **firm - fixed – price** contract duly constructed and received by the INL Contracting Officer or COR.

CHAPTER 7

WORKING CONDITIONS

MATERIAL

When the contractor has to transit/utilize perimeter paved or unimproved roads, he/she shall take into account the maximum load allowed and equipment capability when choosing the equipment (truck HS-20-44 AASHTO). Additionally as part of the contract, the Contractor shall execute all access road improvement and maintenance.

DETAILED WORK PLAN

The offeror shall provide a Critical Path Diagram and Gantt chart as part of the offer and the contractor must do likewise throughout the performance period as requested by the US Government Representative (COR).

RESTRICTIONS FOR THE PERFORMANCE OF WORK

- The contractor shall coordinate all activities the Military commanders (BRCNA), manager and INL COR, (day and night work schedule if permitted).
- As applicable, in order to ensure uninterrupted operations the contractor shall schedule, along with the appropriate authority personnel, the execution of the all work to guarantee the safety of all parties.
- If currently, there are areas occupied by third parties, the clearance of those areas shall be coordinated, on time, with the local Military Commander (BRCNA), and US Government Representative (COR).
- The contractor shall provide appropriate light-signals, signage and reflective tape on stable post along the entire working area and the access roads during all contract life.

ACCESS ROADS

Contractor equipment is not permitted under any circumstance to transit along the road in front of the Army Battalion building without coordinating with the local Military Commander (BRCNA). The disposal of excavation material, waste etc. and the access of construction

material and personnel shall be carried out at times that do not create traffic congestion on roads accessing the or access roads to the work site. When necessary, the local Military Commander (BRCNA) shall modify the contractor's transportation schedule, at no additional cost or additional terms of the contract.

CONTRACTOR INSTALLATIONS

The Contractor is solely responsible for personnel housing off site and shall coordinate with the local Military Commander (BRCNA) and COR the onsite material storage and any other onsite requirements.

Above requirements shall be considered in the offer and shall not be considered for compensation post award.

ELECTRIC POWER AND TELECOMMUNICATIONS

As required the Contractor is responsible for and shall supply/install all connections/wiring, transformers, circuit breakers, controls, and overall all electric installation necessary to obtain enough power and light to support the construction site. This plan will be submitted with the offer for technical review and approval. Electric installations executed by the Contractor shall meet RETIE and ICONTEC standards, must be executed to the standard of the INL Contracting Officer's technical review panel and the local Power Authority. Unless otherwise agreed upon in the Contract or requested by the INL Contracting officer all electrical service connections will be removed and the site left to National Electric Code and the satisfaction of the local Military Commander (BRCNA) and the INL engineer team.

The Contractor shall supply and maintain, at his own cost, telephones and other communications systems that may be required in relation to the work; all lines and permits will be the sole responsibility of the contractor and will be paid by the contractor. Utilities costs incurred by the contractor for the execution of the work will be assumed by the contractor.

STANDARD SPECIFICATIONS

Material, equipment and elements supplied by the Contractor shall meet the following Codes:

- Colombian anti-seismic code NSR – 10
- Codes issued by the Ministry of Transportation.
- Local and National Power Authority Electric Codes
- American Association of State Highway and Transportation official (AASHTO).
- American Society for Testing and Materials (ASTM).

DRAWINGS AND SPECIFICATIONS

The Contractor shall strictly adhere to the Drawings and Statement of Work of the project which are provided for the purpose of this contract by INL PROJECT TEAM. Any suggestion or modification to the plans or the specifications that the Contractor wants to communicate to the US Government Representative (COR). To cover risk associated with the project the Contractor shall obtain appropriate insurance coverage. At the end of the project, if during the project there are any contract approved changes, the Contractor is responsible to deliver to the US Government Representative (COR) all updated specifications and drawings in both printed and electronic media.

SECURITY

DESCRIPTION

Security is a set of preventive control measures that must be fully complied with by all users of public in the country. The administrator or manager of each is responsible for security and shall make sure that the norms within the Battalion are met. Up to and throughout the contract the Contractor, his staff and all sub-contracted personnel are obligated to comply. As this area is a Colombian National Army operational site the local Military commander will be consulted and coordinated with throughout the entire project's performance of work.

CONSTRUCTION OPERATIONS

Entrance to restricted areas of the Army Base.

Authorization to enter restricted areas of the Army Base must be requested by the Contractor for him, his staff and vehicles and equipment. This process will be accomplished by submitting a complete list of all Contractor personnel, vehicles and equipment to the US Government Representative (COR) two weeks prior to the initiation of any visits, preparation or work at the site. Once on site all movement of personnel, vehicles and equipment will be coordinated with the local Military Commander (BRACNA). If the Military Commander's guidance impact the project in any manner, the INL Contracting Officer or COR shall be immediately notified.

Communication

For the purpose of this contract the contractor is obligated to be in constant communication with the Military Commanders. This communication shall preferably be accomplished by cell phone in order to guarantee that the Area Military Commanders (BRCNA), have timely and first-hand knowledge of the approval and location of the staff, material, vehicles and equipment. If the authority mentioned herein does not authorize the entrance of staff, vehicles,

equipment or material, the contractor shall not be able to do so. The contractor shall agree with the authorities mentioned herein on an effective means of communication in order to guarantee, at all times, the security and safety of the Army base, contractor personnel and work site.

Storage Area

a. The storage areas for materials or personal vehicles must be assigned by local Military Commanders.

b. Material stored within the Army Base property, shall not obstruct or negatively impact the security of military personnel.

Fires

Fires are not permitted within the property of the Army base.

Erosion

Contractors must supply and implement, permanent erosion control and/or prevention measures, not only to maintain and protect the grade, pavement and other items, but also to reduce the potential contamination of any water sources.

Accidents

All accidents that cause personal injuries or that damage property shall be immediately reported to the local Military Commanders and the INL Contracting Officer or COR. In such cases, the contractor is responsible to provide the required first aid and equipment for first aid and evacuation to contractor/sub-contractor personnel injured during the performance of a task, may it be at or near the site that has resulted in injury, death, or damage to property. Complete details along with statements from witnesses must be provided to the INL Contracting Officer to be distributed to the local Military Commanders. If a death, serious injury or damage to property occurs, it must be immediately reported by radio, phone or in person to the local Military Commander and the INL Contracting Officer or COR.

Security

The Contractor is responsible for the security of his/her equipment and material. The Contractor shall adhere to follow Army Base security regulations and ensure full compliance by his/her staff, subcontractors and associated personnel, specifically those regulations pertaining to but not limited to Army Base access, access to restricted areas and those areas that are permanently associated with military operations. It is the responsibility of the

Contractor to avoid security violations within the construction area or any area along the construction route.

Access Authorization and Entry Control Points

All personnel or vehicles accessing the Army Base and all areas therein must possess written authorization from the local Military Commanders (no exception). From the moment of entrance and throughout the entire time in Army Base installation all personnel, vehicles and equipment must possess and display written authorization as stated by the local Military Commanders. Vehicles and equipment are only authorized access within the area authorized by local Military Commanders. The local Military Commanders is the ultimate authority for all Army base access. Entering into an area not specifically authorized will result in sanctions and possible eviction from the site. Authorization costs will be paid by the Contractor. At the end of the period of performance, or when a worker is dismissed or leaves the project, the contractor must return the permits and receive in writing acknowledgement of the permit return. This accountability procedure is the Contractor's responsibility. The contractor is fully responsible for all acts of permit misuse by his employees and subcontractors.

7.0. BASIC CONCRETE SPECIFICATIONS

7.1. GENERAL

This chapter includes the requirements related to material required for concrete, tests, inspections concrete form preparation, transport, pour, setting and repairing of all the concrete that shall be used in the construction of the project.

7.2. MATERIAL

7.2.1 General

The only materials that are authorized for use are those approved in the contract in accordance with the specifications of the statement of work. Material is subject to inspection and tests at any time during storage, preparation or use. Prior to construction, the supply source for material shall be approved by the US Government Representative (COR). When requested, representative samples of the material shall be submitted by the contractor for testing and evaluation. Material shall be stored and handled in such a manner as to ensure security, quality and consistency. Material shall be stored at a single site to allow for easy and prompt inspection. All equipment for transportation and handling of material and concrete shall be properly cleaned before pouring the concrete. Also all concrete delivery trucks shall be pre-cleared prior to entering the Army Base installation, this is the sole responsibility of the contractor and failure to do so may result in the vehicle being denied access to the work site and a loss of concrete material.

7.2.2. Coarse Aggregate

Coarse aggregate for concrete shall comply with the ASTM C-33 standard requirements. The wear rate shall not be greater than 40% with 500 RPM as stated in norm ASTM C-131. Coarse aggregates will be properly graded from course to fine and within gradation limits using the norm ASTM C-33.

7.2.3. Fine Aggregate

Fine aggregate for concrete shall comply with the requirements of the norm ASTM C-33. Fine aggregates shall be properly graded from fine to coarse and shall be within the gradation limits shown and within gradation limits using the norm ASTM C-33. Homogenization shall be allowed if necessary, in order to fulfill the granulometric requirements for fine aggregates. Fine deficient aggregates with a low material percentage passing sieve No. 50 can be accepted given that such deficiency is not greater than 5% and can be offset with the addition of pozzolonic and cementitious materials different to Portland cement as specified in 5.3.8.2.6 or additives necessary to produce the standard as approved by the US Government Representative (COR).

7.2.4. Cement

The cement used shall be of good quality, from a source approved by US Government Representative (COR), and shall comply with Portland Cement requirements, in accordance with ASTM C-150.

7.2.5. Water

Water used in concrete shall be free of organic matter, oil, alkali, salts, vegetation, clay and mud and other contaminants. If the water is of questionable quality, it shall be tested and certified according to AASHTO T-26.The contractor is solely responsible for obtaining clean, fresh water for concrete mixing and shall ensure that a proper amount is kept on site to allow for continuous operations as required throughout the appropriate phases of the contract.

7.3. CONSTRUCTION METHODS

7.3.1. General

The Contractor shall provide all labor, materials and equipment required for both planned and unforeseen requirements throughout the project and as specified in the statement of work. All machinery and equipment property of or controlled by the Contractor, to be used throughout the project, shall meet the requisite size and capacity requirements. All work performed is subject to inspection and approval of the US Government Representative (COR). The

Contractor shall always have enough experienced workers for the satisfactory execution of the work.

7.3.2. Concrete Mix

The concrete shall consist of a mixture of coarse aggregate, fine aggregate, Portland cement and water. All aggregate and cement shall be dosed when weighed. When adding aggregates, the mixture water shall be compensated by the weight of the moisture in the aggregates, this shall be determined throughout the process. The Contractor shall prepare the different types of concrete mix as required. The Contractor will be solely responsible for the concrete mix design and quality as well as the mix to be used as required in the statement of work. The concrete mix design shall be submitted to COR for approval before to start concrete works.

7.3.3. Control Tests

Control tests for the concrete used in the project shall be performed using applicable norms of NSR-10 or those equivalent norms of the ASSHTO, of the "American Concrete Institute (ACI)" or of the "American Society Testing and Materials (ASTM)". The Contractor shall supply at least 10 standard cylinders tests for each pour or for each type of concrete used in the work each day. These cylinders shall be tested by a certified testing laboratory within, 3, 7 and 28 days according to the norm AASHTO T-22 and the results will be reported to the US Government Representative (COR). The strength criteria for the concrete after 28 days shall be based on a result of the compressive strength tests indicates a minimum of 100% of the specified strength for each concrete batch. The amount of water used in the concrete shall be the minimum required to obtain such a consistency that the concrete can be easily poured. The net mixing water shall be adjusted by the moisture level of the aggregates and by the absorption of fine and coarse aggregates; this shall be in full compliance with the norms AASHTO T-84 y T-85. When concrete is air entrained there is a volume of mortar that is displaced by the air, for that reason, and in order to specify the proper cement percentage, the weight of fine aggregate shall be reduced as required to meet the contract specified concrete mix. Under average conditions the reduction of sand shall be 3% of the total weight of both fine and coarse aggregate and the air percentage shall be within 3%-6% of the concrete volume. The content of air per volume shall be determined measuring it in the concrete immediately upon pouring from the concrete mixer within the norms of AASHTO-T-121 or T-152.

7.3.4. Mixture and Transport

The Concrete should be mixed on site. Each mixer shall be designed so that the material of each mix enters without waste and the product is easily and efficiently poured into approved transport containers. The concrete shall be transported to the work site in containers that

ensure the integrity of the product avoiding separation of material, loss of consistency and alterations to the strength due to the contamination/environment or poor handling. The concrete shall not be delivered by pumping if the distance exceeds 300 meters and equally if vehicles are used for a distance greater than 600 meters a mixing device/capability is required.

7.3.5. Forms

Concrete shall not be poured until all the forms and reinforcement required for the pour have been installed, inspected and approved physically and certified in writing, by US Government Representative (COR). The forms shall be manufactured utilizing material that guarantees that forms are made from adequate material and are of the type, size, quality and resistance required to realize the construction requested by the contract and as described in the plans. The forms shall properly adjust to the grade and angles in the plans, shall be staked and sufficiently rigid so as to prevent any blowouts or irregularity between form supports. The Contractor shall be solely responsible for form material preparation. The form material will be smooth, free of irregularities, dents, holes etc. Internal tension bars or wires shall be installed so as to ensure once the forms are removed there shall not appear any metal objects on the surface or stains produced by the metal. The forms shall not be removed prior to 30 hours for vertical faces, columns and similar fence/structures. Forms shall not be removed from beams, girders, arches and other load bearing fence/structures until 70% of the requisite design resistance is met.

7.3.6. Placing the reinforcement

All the reinforcement shall be placed as shown in the plans and must be tightly secured during the pouring process. Rods shall be tied together at their intersections. The support shall be appropriate wire bolsters or concrete support cubes as approved in the contract. All shop design drawings, list and details shall be submitted to the US Government Representative (COR) as part of the offer.

7.3.7. Inserted Items

Inserted items shall be placed before the concrete is poured/contact is made with the concrete. The insertion of wood or other unacceptable material shall be avoided. Concrete shall be poured and consolidated around and against inserted items.

7.3.8 Inspection

All completed concrete work will be inspected for adherence to the statement of work, applicable codes, structural integrity and aesthetic appearance.